

**CLAIM AMENDMENTS**

Please amend the claims as described below. In accordance with 37 CFR §1.121, a complete listing of all claims in the application is provided below. Notably, the status of each claim is indicated in the parenthetical expression adjacent to the claim number.

Claims 1 - 50 (**Canceled**).

1       **Claim 51 (Currently Amended):** An EIW unit for use in sensing a parameter of a  
2       surface structure that is formed on the EIW by integrated circuit processing equipment  
3       which is used to manufacture an integrated circuit, the EIW unit comprising:  
4       a substrate having a wafer or wafer-like shape ~~shaped profile~~; and  
5       a plurality of sensors, disposed on or in the substrate, to sample the process  
6       parameter of the surface structure that is formed above the sensors and on the EIW unit by  
7       the integrated circuit processing equipment during processing.

1       **Claim 52 (Currently Amended):** The EIW unit of claim 51 wherein the plurality of  
2       sensors includes a plurality of light sensors and wherein the EIW further includes a  
3       predetermined surface layer disposed on the EIW and above the plurality of light sensors  
4       wherein the predetermined surface layer is ~~capable of receiving a~~ adapted to receive the  
5       surface structure thereon.

1       **Claim 53 (Previously Presented):** The EIW unit of claim 52 wherein  
2       predetermined surface layer includes a plurality of layers.

1       **Claim 54 (Previously Presented):** The EIW unit of claim 53 wherein the plurality of  
2 layers includes a composite dielectric structure.

1       **Claim 55 (Previously Presented):** The EIW unit of claim 52 wherein the  
2 predetermined surface layer is patterned to guide or shape the light sampled by the  
3 plurality of light sensors.

1       **Claim 56 (Previously Presented):** The EIW unit of claim 52 wherein the  
2 predetermined surface layer includes a grating structure having a refractive index.

1       **Claim 57 (Previously Presented):** The EIW unit of claim 56 wherein the refractive  
2 index of the grating structure is capable of being changed dynamically.

1       **Claim 58 (Previously Presented):** The EIW unit of claim 56 wherein the EIW unit  
2 further includes an acoustic modulation module disposed in or on the substrate to control  
3 the refractive index of the grating structure.

1       **Claim 59 (Previously Presented):** The EIW unit of claim 51 wherein the plurality of  
2 sensors operates in an end-point mode.

1       **Claim 60 (Previously Presented):** The EIW unit of claim 51 wherein the plurality of  
2 sensors operates in a real-time mode.

1           **Claim 61 (Currently Amended):** The EIW unit of claim 51 wherein the plurality of  
2 sensors includes a plurality of light sensors and wherein the light sensors sample light that  
3 is reflected or scattered by the surface structure ~~formed by the integrated circuit processing~~  
4 ~~equipment during processing.~~

1           **Claim 62 (Previously Presented):** The EIW unit of claim 61 further including a first  
2 light source, disposed on or in the substrate, to output light to permit sampling of the  
3 process parameter of the surface structure by the plurality of sensors.

1           **Claim 63 (Currently Amended):** The EIW unit of claim 62 wherein the intensity of  
2 the light output by the first light source ~~may be~~ is varied or modulated.

1           **Claim 64 (Currently Amended):** The EIW unit of claim 62 further including a  
2 second light source disposed on or in the substrate, to output light to permit sampling of the  
3 process parameter of the surface structure by the plurality of sensors and wherein the  
4 intensity of the light output by the first light source ~~may be~~ is varied or modulated relative to  
5 the second light source.

1           **Claim 65 (Currently Amended):** The EIW unit of claim 62 wherein the process  
2 parameter is a thickness of the surface structure ~~formed above the sensors and on the EIW~~  
3 ~~unit by the integrated circuit processing equipment during processing.~~

1       **Claim 66 (Previously Presented):** The EIW unit of claim 61 wherein the plurality of  
2 light sensors is CMOS devices, charge coupled devices, or photodiodes.

1       **Claim 67 (Previously Presented):** The EIW unit of claim 61 wherein the plurality of  
2 light sensors periodically or continuously samples the intensity of the light while the EIW  
3 unit is disposed in the integrated circuit processing equipment and undergoing processing.

1       **Claim 68 (Previously Presented):** The EIW unit of claim 67 further including data  
2 storage, coupled to the plurality of light sensors, to store data which is representative of the  
3 parameter of the surface structure.

1       **Claim 69 (Previously Presented):** The EIW unit of claim 67 further including:  
2 communication circuitry to provide the data which is representative of the parameter  
3 to external circuitry; and  
4 at least one rechargeable battery, to provide electrical power to the communication  
5 circuitry.

1       **Claim 70 (Previously Presented):** The EIW unit of claim 67 wherein the process  
2 parameter is a surface profile of the surface structure.

1       **Claim 71 (Currently Amended):** A method of measuring a process parameter of a  
2 surface structure that is formed by an integrated circuit manufacturing process wherein the  
3 method of measuring the process parameter uses an EIW unit having a substrate, which

4 ~~includes a wafer shaped profile,~~ and a plurality of sensors disposed on or in the substrate,  
5 the method comprising:  
6 placing the substrate into the integrated circuit processing equipment;  
7 performing the integrated circuit manufacturing process that forms a surface  
8 structure above the plurality of sensors during the manufacturing process;  
9 enabling the plurality of sensors to sample the process parameter of the surface  
10 structure;  
11 sampling the process parameter of the surface structure using the plurality of  
12 sensors; and  
13 determining the process parameter of the surface structure using data from the  
14 plurality of sensors.

1 Claim 72 (**Previously Presented**): The method of claim 71 wherein the EIW unit  
2 further includes a predetermined surface layer having a refractive index wherein the  
3 predetermined surface layer is disposed above the plurality of light sensors and wherein  
4 the method further includes changing the refractive index of the predetermined surface  
5 layer.

1 Claim 73 (**Currently Amended**): The method of claim 72 further including  
2 dynamically changing the refractive index of the predetermined surface layer while or after  
3 performing the integrated circuit manufacturing process.

1        **Claim 74 (Previously Presented):** The method of claim 71 wherein the process  
2        parameter of the surface structure that is formed by the integrated circuit manufacturing  
3        process is sampled after performing the integrated circuit manufacturing process.

1        **Claim 75 (Previously Presented):** The method of claim 71 wherein the process  
2        parameter of the surface structure that is formed by the integrated circuit manufacturing  
3        process is sampled while performing the integrated circuit manufacturing process.

1        **Claim 76 (Previously Presented):** The method of claim 71 wherein the EIW unit  
2        further includes a plurality of light sources wherein the plurality of sensors samples the light  
3        output by the plurality of light sources and wherein the method further includes enabling the  
4        plurality of light sources to output light and wherein sampling the process parameter of the  
5        surface structure using the plurality of sensors includes sampling the response to the light  
6        output by the plurality of light sources using the plurality of sensors.

1        **Claim 77 (Previously Presented):** The method of claim 76 wherein the plurality of  
2        light sources output light at different wavelengths.

1        **Claim 78 (Currently Amended):** The method of claim 76 wherein sampling the  
2        response to the light output by the plurality of light sources includes sampling the light,  
3        while or after performing the integrated circuit manufacturing process, that is reflected or  
4        scattered by the surface structure ~~formed by the integrated circuit processing equipment~~  
5        ~~during processing.~~

1           **Claim 79 (Currently Amended):** The method of claim ~~76~~ 78 further including  
2   varying the intensity of the light output by the plurality of light sources.

1           **Claim 80 (Currently Amended):** The method of claim ~~76~~ 78 further including  
2   varying the intensity of the light output by a first light source of the plurality of light sources  
3   relative to another light source of the plurality of light sources.

1           **Claim 81 (Previously Presented):** The method of claim 76 wherein sampling the  
2   response to the light output by the plurality of light sources includes periodically or  
3   continuously sampling the response to the light output by the plurality of light sources while  
4   performing the integrated circuit manufacturing process.

1           **Claim 82 (Previously Presented):** The method of claim 76 further including  
2   sampling the intensity of the reflected or scattered light using the plurality of sensors.

1           **Claim 83 (Previously Presented):** The method of claim 82 wherein the plurality of  
2   light sources is disposed on or in the substrate of the EIW unit.

1           **Claim 84 (Previously Presented):** The method of claim 83 further including varying  
2   the intensity of the light output by the plurality of light sources.

1       **Claim 85 (Previously Presented):** The method of claim 83 further including varying  
2       the intensity of the light output by a first light source of the plurality of light sources relative  
3       to another light source of the plurality of light sources.

1       **Claim 86 (Previously Presented):** The method of claim 83 wherein sampling the  
2       response to the light output by the plurality of light sources includes periodically or  
3       continuously sampling the response to the light output by the plurality of light sources while  
4       performing the integrated circuit manufacturing process.

1       **Claim 87 (Previously Presented):** The method of claim 83 further including  
2       sampling the response to the light output by the plurality of light sources after performing  
3       the integrated circuit manufacturing process.

1       **Claim 88 (Currently Amended):** The method of claim 83 wherein the EIW unit  
2       further includes a predetermined surface layer having a refractive index, wherein the  
3       predetermined surface layer is disposed above the plurality of sensors and plurality of light  
4       and wherein performing the integrated circuit manufacturing process includes forming the  
5       surface structure on the predetermined surface layer.

1       **Claim 89 (Previously Presented):** The method of claim 88 further including  
2       changing the refractive index of the predetermined surface layer.

1       **Claim 90 (Currently Amended):** The method of claim 88 further including  
2       dynamically changing the refractive index of the predetermined surface layer while or after  
3       performing the integrated circuit manufacturing process.

1       **Claim 91 (Previously Presented):** The method of claim 83 wherein the process  
2       parameter is a thickness of the surface structure.

1       **Claim 92 (Previously Presented):** The method of claim 71 wherein the process  
2       parameter is a thickness of the surface structure.

1       **Claim 93 (Previously Presented):** The method of claim 71 wherein the process  
2       parameter is a spatial distribution of a surface structure.

1       **Claim 94 (Currently Amended):** A system for sensing a process parameter of a  
2       surface structure that is formed by integrated circuit processing equipment which is used to  
3       manufacture an integrated circuit, the system comprising:  
4       an EIW unit that is capable of being adapted to be disposed in the integrated circuit  
5       processing equipment, the EIW unit including:  
6       substrate having a wafer or wafer-like shape shaped profile; and  
7       a sensor, disposed on or in the substrate, to sample the process parameter of  
8       the surface structure that is formed by integrated circuit processing equipment,  
9       wherein the sensor samples the process parameter while or after the EIW unit is  
10      subjected to processing by the integrated circuit processing equipment; and

11 a computing device to receive the samples from the sensor and determine the  
12 process parameter of the surface structure using the samples.

1 Claim 95 (**Previously Presented**): The system of claim 94 wherein the sensor  
2 includes CMOS devices, charge coupled devices, or photodiodes.

1 Claim 96 (**Previously Presented**): The system of claim 94 wherein the process  
2 parameter is a surface profile of the surface structure.

1 Claim 97 (**Previously Presented**): The system of claim 94 wherein the process  
2 parameter is a thickness of the surface structure.

1 Claim 98 (**Previously Presented**): The system of claim 94 wherein the sensor  
2 operates in an end-point mode.

1 Claim 99 (**Previously Presented**): The system of claim 94 wherein the sensor  
2 operates in a real-time mode.

1 Claim 100 (**Currently Amended**): The system of claim 94 wherein the EIW unit  
2 further includes a predetermined surface layer disposed above the sensor wherein the  
3 predetermined surface layer is ~~capable of receiving a~~ adapted to receive the surface  
4 ~~structure thereon, and wherein the system further includes a source that outputs light.~~

1           **Claim 101 (Currently Amended):** The system of claim 100 wherein the system  
2 further includes a source that outputs light ~~the source outputs light~~ at different wavelengths.

1           **Claim 102 (Currently Amended):** The system of claim 100 wherein the sensor  
2 includes a plurality of light sensors wherein the light sensors sample light that is reflected or  
3 scattered by a surface structure that is formed by the integrated circuit processing  
4 equipment ~~during processing~~.

1           **Claim 103 (Currently Amended):** The system of claim 102 wherein the  
2 predetermined surface layer is patterned to guide or shape the light output by the a light  
3 source that is disposed on or in the substrate.

1           **Claim 104 (Previously Presented):** The system of claim 102 wherein the  
2 predetermined surface layer includes a grating structure having a refractive index.

1           **Claim 105 (Previously Presented):** The system of claim 104 wherein the refractive  
2 index of the grating structure is capable of being changed dynamically.

1           **Claim 106 (Previously Presented):** The system of claim 102 wherein the EIW unit  
2 further includes an acoustic modulation module disposed in or on the substrate to control  
3 the refractive index of the grating structure.

1       **Claim 107 (Previously Presented):** The system of claim 100 wherein  
2       predetermined surface layer includes a plurality of layers.

1       **Claim 108 (Previously Presented):** The system of claim 107 wherein the plurality  
2       of layers includes a composite dielectric structure.

3       **Claim 109 (Previously Presented):** The system of claim 100 wherein the source  
4       includes a plurality of light sources disposed in or on the substrate of the EIW unit.

1       **Claim 110 (Previously Presented):** The system of claim 109 wherein the sensor  
2       and source operate in an end-point mode.

1       **Claim 111 (Previously Presented):** The system of claim 109 wherein the sensor  
2       and source operate in a real-time mode.

1       **Claim 112 (Currently Amended):** The system of claim 109 wherein the intensity of  
2       the light output by the plurality of light sources ~~may be~~ is varied or modulated.

1       **Claim 113 (Currently Amended):** The system of claim 109 wherein the intensity of  
2       the light output by a first light source of the plurality of light sources ~~may be~~ is varied or  
3       modulated relative to another light source of the plurality of light sources.

1           **Claim 114 (Currently Amended):** The system of claim 109 wherein the computing  
2   device determines a thickness of a surface layer formed on the EIW unit by the integrated  
3   circuit processing equipment ~~during processing~~.

1           **Claim 115 (Currently Amended):** The system of claim 109 wherein the computing  
2   device determines a spatial distribution of a surface layer formed on the EIW unit by the  
3   integrated circuit processing equipment ~~during processing~~.